SUBJECT INDEX

Vol. 136A, Nos. 1–4

Acanthosis nigricans, 95
Acid, 229
Acid–base regulation, 701
Acne, 95
Adaptation, 171
Adaptation, 35, 85, 171
Adipose, 655
Adiposity, 5
Adrenergic receptor subtypes, 311
Adriatic Sea, 631
Aedes aegypti, 717
Aerobic dive limit, 799
Aerobic performance, 191
Age, 851
Aldosterone, 507
Alectoris chukar, 757
Alkaline environment, 701
Allometry, 301, 757
Almonds, 141
Ama, 205
Amino acid transmitters, 329
Amphibian, 259, 271
Anaerobic, 171
Anaerobic performance, 191
Angiotensin II, 557
Antibody response, 957
Antioxidant, 113
Anuran amphibians, 557
Apes, 47
Aquaporins, 479
Artemia, 353
Ascorbic acid, 113, 353
Astaxanthin, 683
Athletic performance, 191
Australopithecines, 27

Base transport, 701
Behavior, 427, 539, 557
Bicarbonate, 229
Bird, 271
Birds, 499
Bivalves, 631
Blood, 749
Body composition, 5, 379
Body mass, 851
Body proportions, 71
Body temperature, 757, 911
Boundary layer, 417
Brain, 17
Brain distribution, 663
Breathing, 917
Breathing pattern, 943
Bullfrog, 693

Calbindin, 673
Calcification, 417
Calcium, 417, 673
Calcium channels, 417
Canthaxanthin, 683
Carbon dioxide, 259, 281
Carbonic anhydrase, 229, 243, 259, 271, 281
Cardiovascular centers, 605
Cardiovascular disease, 127
Carotenoid, 683
Cat, 605
cDNA sequence, 655
Cerebral cortex, 821
Cerebrospinal fluid, 229
Chamelea gallina, 631
Chick brain, 447
Chick embryo, 391
Chicken, 401
Child nutrition, 61
Chitin, 717
Chitinase, 717
Chloride, 453
Cholesterol, 17, 141
Chromosome and sex chromosome evolution, 867
Chronic disease, 127
Chukar, 757
Coelenterates, 329
Cold-acclimation, 621
Colon, 281
Comparative mapping, 867
Comparative method, 85
Comparative physiology, 229
Complementary feeding, 61
Confinement, 613
Constant region, 811
Contraction burst pulses, 329
Control of ventilation, 205, 917
Convection requirement, 943
Cooking, 35
Corals, 417
Coronary heart disease, 127, 141
Cortical rod, 371
Cortisol, 525, 613
Coturnix coturnix japonica, 663
C_4 photosynthesis, 27
Crayfish, 539
Crustaceans, 243
C-type natriuretic peptide, 565
Cutaneous drinking, 557
Cutaneous papillomas (skin tags), 95
Cyclooxygenase, 409

Data logger, 799
Dehydration, 557
Dendritic spines, 827
Development, 391, 427
Developmental plasticity, 71
DHA, 127
Dicentrarchus labrax, 613
Diet, 47, 113, 141
Diet quality, 5
Dietary diversity, 61
Dietary methodology, 61
Dietary protein, 577
Dietary quality, 577
Digestive enzyme, 717
Digestive function, 701
Dive duration, 799
Diving, 799
Diving behaviour, 799
Diving populations, 205
Diving response, 205
Diving strategy, 799
Docosahexaenoic, 127
Docosahexaenoic acid, 17
Dog, 605
Doubly labelled water, 903
Drinking, 701
Dual-energy X-ray absorptiometry, DXA, 379
Duodenal lumen, 591

Early hominids, 27
Early menarche, 95
Echidna, 851, 917, 927, 957
Echidna, *Tachyglossus aculeatus*, 883
Echidnas, 903
Effector, 725
Egg extracellular matrix, 343
Eggshell gland, 673
Eicosanoids, 409
Electrolocation, 821
Electroreception, 821
ELISA, 673
Embryo, 321
Embryonic development, 447
Emersion, 539
Encephalization, 5
Endothermy, 943
Endurance, 191
Endurance control features, 215
Energetic strategy, 441
Energy cost, 161
Energy expenditure, 903
Enforced exercise, 525
Enteric nervous system, 591
Enzyme immunoassay, 693
Epithelial cell carcinomas, 95
Epithelial transport, 453
Epithelium, 281
Equine hyperlipemia, 311
Erythrocyte, 259
Estradiol, 447
17β-Estradiol, 641
Estrogen receptor α, 447
Euterrestrial amphipods, 735
Evolution, 113, 141, 259, 811, 927
Evolution and sensory nerve function, 883
Evolutionary health promotion, 153
Excretion, 321
Exercise and health, 153
Exercise recommendations, 153
Extrarenal sodium secretion, 507
Extreme breath-hold divers, 205

Fat, 17
Fatty acid, 353
Feeding, 655
Fertilization, 343
Fiber, 35
Fish, 259, 271, 655
Fish consumption, 127

doi: 10.1016/S1095-6433(03)00332-5

FK506, 391
FK506-binding protein, 391
FKBP12, 391
FKBP12.6, 391
Fluid homeostasis, 479
Fluid transport, 453
Foraging efficiency, 799
F. paulensis, 321
Fractional utilization of VO_{2max}, 161
Free fatty acids, 895
Freshwater adaptation, 771
Freshwater invasion, 771

Gallus domesticus, 663
Gas exchange, 289
Gastrointestinal, 499
Gene expression, 391, 655
Gene-culture co-evolution, 85
Genetics, 141, 191
Genomic imprinting, 867
Geographic distribution, 735
Gill, 271
Glucocorticoids, 895
Glucose, 525
D-glucose, 779
Glucose transporter, 779
GLUT2, 779
Gonadotropin-releasing hormone release, 693
Gondwana, 927
Growth, 61, 851
Gull, 749
Gut, 507
Gut anatomy, 701
Gut pH, 717
Gyrification, 827

Haemocytes, 631
Health, 47
Heart, 391
Heart rate baseline, 289
Heart rate fluctuation, 289
Hematology, 577
Hemocyanin, 725
Hemocyte microaggregation, 409
Hemolymph osmotic and ionic regulation, 771
Hepatocytes, 779
Hepatosomatic index, 641
Heritability, 191
Hibernation, 917
High altitude adaptation, 215
Hindgut, 507
Hispid cotton rat, 577
Hominids, 17
Homo erectus, 5
Household diets, 61
5-HT receptor antagonist, 591
Human evolution, 17, 153
Human health, 113
Human sex ratio, 85
Humidity tolerance, 735
Hydraulic dredge, 631
Hypercapnia, 917, 943
Hyperinsulinemia, 95
Hyperoxia, 289, 917
Hypothalamic explants, 693
Hypoxia, 289, 917, 943

IgG, 957
Ig isotype switch, 957
IgM, 957
Iguana, 301
Immersion, 539
Immune System, 749
Immunocompetence, 577
Immunoglobulin, 811
In vitro, 409, 683
In vitro superfusion, 613
Increased stature, 95
Infant, 17
Ingestion rates, 35
Insect immunity, 409
Instantaneous heart rate, 289
Integration, 499
Interleukin 1, 663
Interleukin-1 receptor mRNA, 663
Interleukin-1 receptor, type I, 663
Interrenal tissue, 613
Intestine, 673, 683
Intravascular, 271
Iodine, 17
Ionoregulation, 701
Isocortex, 827
Isoform, 401
Isozyme, 259

Jasus edwardsii, 353

Kenyan runners, 161
Ketone bodies, 17
11-Ketotestosterone, 641
Kidney, 229, 507, 565
Kidneys, 499

Lactation, 903
Lactose tolerance, 85
Lamprey, 779
Larvae, 321
Leaf litter, 735
Leukocyte, 749
Lipid, 655
Lipid metabolism, 311
Liver, 655
Liver plasticity, 621
Lizard, 301
Long-beaked echidna, 911
Low score normal, 401
Lung, 271
Lung volumes, 205
Lymphocyte, 749
Lytic enzymes, 631

Macrobrachium, 771
Male vertex balding, 95
Mammal, 271
Mammals, 827
Manduca sexta, 409
Marine fish, 229
Marsupial, 621
Maternal mortality, 85
Maximum metabolic rates, 215
Maya, 71
Meat, 35
Mechanical stress, 631
Mesozoic mammals, 927
Metabolic control, 215
Metabolic rate, 757
Metabolic rate, 301
Metabolism, 191, 943
Methionine, 577
Micronutrient requirements, 47
Microtus cabrerae, 441
Migrating myoelectric complex, 591
Migratory cycle, 749
Minerals, 47
Mitochondrial volume, 621
Mojave desert, 539
Molecular, 171
Monkeys, 47
Monoclonal antibody, 371
Monoclonal antibody, 401
Monotreme, 811, 821, 827, 851, 867, 883, 917, 927, 957
Motility, 591
mRNA expression, 565
Mucus, 281
Muscle, 161, 171
Mussel, 321
Myogenesis, 401
Myopia, 95
Myosin, 401

Natriuretic peptide receptor B, 565
Natural selection, 85
Neocortex, 827
Neolithic, 141
Neotropical palaemonid shrimps, 771
Nested MWC model, 725
Neuromuscular junction, 427
Neurotransmission, 427
Nitric oxide synthase, 605
Non-mammalian vertebrates, 453
Non-shivering thermogenesis (NST), 621
Notomys alexis, 565
Nutrient adequacy, 61
Nutrition, 353

Oklahoma, 577
Ontogeny, 301
Opossum, 621
Organic anions, 453
Ornithorhynchus anatinus, 799, 895, 943
Osmolyte, 725
Osmoregulation, 243, 499, 507, 525
Osmotic challenge, 479
Ovarian development, 641
Ovary, 371
Oxidation, 113
Oxidative stress, 113
Oxygen, 417
Oxygen-consumption, 321

Pagrus major, 655

Palaemon, 771
Palaemonidae, 771
Paleodiets, 27
Paleolithic, 113
Pectoralis major, 401
Penaeid, 371
Performance, 171
Peritrophic matrix, 717
Phagocytosis, 631
Photosynthesis, 417
Phyllosoma, 353
Phylogeny, 85
Physical activity, 153
Physiology, 539
Pipped embryos, 289
Plant food, 35
Plant sterols, 141
Plasma, 673
Plasma glucose, 895
Platypus, 799, 811, 821, 895, 927, 957
Polycystic ovary syndrome, 95
Portfolio, 141
P. perna, 321
Pre-pipped embryos, 289
Precocial birds, 757
Preferential hydration, 725
Procambarus clarki, 539
Progesterone, 447
Progesterone receptor isoforms, 447
Prostaglandins, 409
Prototheria, 927
Prototherian, 827
Pulsatility, 693
Pyramidal, 827

Rainbow trout, 779
Rat, 605, 693
Rate of oxygen consumption, 943
Raw-foodist diets, 35
Reactive oxygen species, 655
Red blood cell, 259
Renal handling of water, 479
Renal tubules, 453
Repetitive bursts of action potentials, 591
Replacement hypothesis, 71
Reproduction, 371, 641, 895
Reproductive system, 673
Reptile, 271, 301, 379
Respiration, 259
Response of heart rate, 289
Resting metabolism, 5
Retinoic acid, 391
Rhythmic potentials, 329
RTH-149, 779

Salinity, 243, 525
Salinity adaptation, 771
Salinity tolerance, 735
Salmon, 683
Salt glands, 507
Satellite cells, 401
Scaling, 301
Sea bass, 613
Sensors, 417
Serotonin, 591
Serratia marcescens, 409
Sex steroid hormones, 447
Sexual dimorphism, 447
Sexual maturity, 851
Shellfish, 17
Short-beaked echidna, 811
Shrimp, 321, 371
Sickness behavior, 663
Sigmodon hispidus, 577
Simian, 141
Small intestine, 591
Smooth muscle contraction, 591
Snake, 379
Sodium, 453, 507
Sodium, chloride and magnesium regulation, 771
Soil, 735
Somatosensory system, 883
Soy protein, 141
Speciation event, 35
Spiny lobster, 353
Spleen, 749
Squamate, 301
Stable carbon isotopes, 27
Starvation, 353, 673
Stomach, 281
Stress, 613
Stress response, 525
Sub-Saharan Africa, 61
Substrate specificity, 717
Summit metabolism, 621
Supplementation, 577
Surface duration, 799
Synapse, 827

Tachyglossus, 851
Tachyglossus aculeatus, 903
Tactile receptors, 883
Tactile sensory function, 883
Tarantula, 725
Tasmania, 903
Teleost fish, 641
Temperature, 525, 539
Temperature regulation, 205
Temperature tolerance, 735
Tentacle pulses, 329
Testicular development, 641
Testosterone, 641
Thermal acclimation, 301
Thermal conductance, 757
Thermoregulation, 539, 757
Thermoregulatory abilities, 441
Thomas H. Maren, 229
Thymus, 749
Tissue aerobic potential, 621
Trainability, 161
Training, 171
Translocation chain, 867
Transport, 779
Transport regulation, 453
Trout, 683
Turbot, 525

Uncoupling protein 2, 655
Uptake studies, 779
Urate, 453
Urine concentration, 479
Urine dilution, 479

Variable region, 811
Vasotocin, 479
Ventilation, 943
Veratridine, 693
Vertebrate kidneys, 479
Vertebrates, 499
Viscous dietary fiber, 141
Vitamin A, 683
Vitamin C, 113
Vitamins, 47
Vitellogenesis, 371
$\dot{V}O_{2max}$, 161
$\dot{V}O_2$max control, 215

Water deprivation, 565
Water transport, 479
Weaning, 851
White fat cells, 311
White leghorn, 401

Xenopus laevis, 343
Xenopus tropicalis, 343
X inactivation, 867

Yolk, 371

Zaglossus, 911

AUTHOR INDEX

Vol. 136A, Nos. 1–4

Andersen, N.A., 903
Andersen, N.A., 917
Ashwell, K.W.S., 883
Ashwell, K.W.S., 827

Ballarin, L., 631
Bar, A., 673
Barnes, J.A., 911
Bass, P., 591
Beard, L.A., 911
Beatty, C.L., 215
Belov, K., 811
Benzie, I.F.F., 113
Bergman, A.N., 701
Bergman, H.L., 701
Bethge, P., 799
Bogin, B., 71
Bohringer, R.C., 883
Braun, E.J., 499
Braw-Tal, R., 673
Brown, M.R., 353
Bugaychenko, L.A., 605
Burggren, W.W., 289

Caballero, M.J., 613
Camacho-Arroyo, I., 447
Campbell, T.C., 127
Carrington, E.F., 311
Cavassin, F., 771
Cavolina, J.M., 693
Chen, J., 655
Chen, J., 127
Clayton, M.K., 591
Clode, P.L., 417
Conklin-Brittain, N., 35
Connelly, P.W., 141
Cooper, R.L., 427
Cordain, L., 95
Costa, M., 205
Cowling, J.E., 735
Coy, C.S., 401
Crawford, M.A., 127
Crawford, M.A., 17
Crear, B.J., 353
Cunnane, S.C., 17

Dahle, R., 641
Dantzler, W.H., 453
Datsenko, V.V., 605
Davies, S.J., 683
De la Fuente, M., 749
Deakin, J., 867
Decker, H., 725
Desautels, M., 311
Donald, J.A., 565
Dunstan, G.A., 353
Dzialowski, E.M., 289

Eades, M.D., 95
Eades, M.R., 95
Eaton, S.B., 153
Eaton, S.B., 153
El-Mogharbel, N., 867
Endeward, V., 281
Esbaugh, A., 259
Evans, B.K., 895

Fan, W., 127
Fan, Z., 479
Ferretti, G., 205
FitzGerald, R., 525
Foss, A., 525
Frappell, P.B., 943
Freire, C.A., 771
Fry, G.J., 911

Gallegos, J., 591
Gaston, K.J., 735
Gehnrich, S., 243
Ghebremeskel, K., 127
Gilmour, K.M., 227
Goldstein, J., 557
González-Agüero, G., 447
González-Arenas, A., 447
González-Morán, G., 447
Grützner, F., 867
Gregory, E., 821
Grigg, G.C., 911
Gros, G., 281
Guerra-Araiza, C., 447
Gusmão, D.S., 717

Handasyde, K.A., 895
Harrison, D.A., 427
Hassiotis, M., 827
Hawkins, M., 911
Hedrick, J.L., 343
Heimeier, R.A., 565
Hellman, L., 811
Hellmann, N., 725
Heming, T., 271
Henry, R.P., 243
Hillyard, S.D., 557
Hochachka, P.W., 215
Hoff, K., 557
Holden, C., 85
Hughes, M.R., 507
Hwang, F., 655

Iio, A., 391
Imsland, A.K., 525

Jacobson, E.R., 301
Jenkins, A.L., 141
Jenkins, D.J.A., 141
Johansson, H., 605
Jones, P.J.H., 141
Jordan, F., 85
Jorge, R.L.V., 321

Kagami, H., 391
Kalezic, I., 605
Karlsen, Ø., 641
Kass-Simon, G., 329
Kendall, C.W.C., 141
Khandoker, A.H., 289
Kjesbu, O.S., 641
Klasing, K.C., 663
Kleinke, T., 281
Klunder, M., 441
Koide, M., 391
Kostyukov, A.I., 605
Kruitwagen, G., 525
Kuzawa, C.W., 5

Larsen, H.B., 161
Laurent, P., 701
Lee-Thorp, J.A., 27
Lejano, R.S., 343
Lemos, D., 321
Lemos, F.J.A., 717
Leonard, W.R., 5
Leslie, D.M., 577
Leyton, J., 127
Li, J., 127
Liang, X.-F., 655
Lindsay, L.L., 343
Lindstedt, S.L., 621
Lochmiller, R.L., 577
Lund, S.G., 259

Mace, R., 85
Mahns, D.A., 883
Maisky, V.A., 605
Mannerström, M., 779
Marchie, A., 141
Marin, M.G., 631
Markle, R.A., 621
Marshall, A.T., 417
Marshall Graves, J.A., 867
Masters, R.E., 577
Mathias, M.L., 441
Maxwell, L.K., 301
McDonald, I.R., 895
McFarland, D.C., 401
McGaw, I.J., 539
McKelvey, M.W., 851
McNab, B.K., 301
McNamara, J.C., 771
Millam, J.R., 663
Miller, J.S., 409
Milton, K., 47
Moenter, S.M., 693
Moibenko, A.A., 605
Montero, D., 613
Muñoz, F.J., 749

doi: 10.1016/S1095-6433(03)00333-7

Author Index

Munday, B.L., 957
Munks, S., 799
Musser, A.M., 927
Myburgh, K.H., 1
Myburgh, K.H., 171

Nagy, T.R., 379
Naylor, J.M., 311
Nicol, S., 795
Nicol, S., 917
Nicol, S., 799
Nicol, S.C., 903
Nishimura, H., 479
Norberg, B., 641

Oaks, J.A., 591
Obata, K., 391
Ogata, H.Y., 655
Oku, H., 655
Ono, T., 391
Onyango, A.W., 61
Otiang'a-Owiti, G., 701
Otley, H., 799

Pampanin, D.M., 631
Pannaccione, A., 329
Parker, R., 127
Parpoura, A.C., 525
Paxinos, G., 827
Payette, A.L., 539
Peavy, T.R., 343
Perry, L.I., 911
Perry, S.F., 227
Phan, V.N., 321
Phelps, P.K., 409
Pierobon, P., 329
Pilyavskii, A.I., 605
Pis, T., 757
Pretzman, C.I., 401
Proske, U., 821

Qiu, G.-F., 371

Raithel, K., 725
Rens, W., 867
Rios, L., 71
Rismiller, P.D., 851
Ritar, A.J., 353

Ørnsrud, R., 683

Robertson, M.L., 5
Rodrigues, E.N., 771
Rotllant, J., 613
Rowe, M.J., 883
Ruane, N.M., 613
Rupert, J.L., 191

Sahai, V., 883
Salama, A., 779
Santos, S.M., 441
Sasaki, S.-i., 391
Sawdy, J.C., 401
Schaeffer, P.J., 621
Schmid, J., 903
Secor, S.M., 379
Seto, H., 371
Snodgrass, J.J., 5
Souza-Neto, J.A., 717
Speakman, J.R., 903
Spicer, J.I., 735
Sponheimer, M., 27
St-Pierre, N.R., 401
Stabenau, E.K., 271
Stanley, D.W., 409
Stefansson, S.O., 525
Sveinsbø, B.O., 525
Swenson, E.R., 229

Tähti, H., 779
Taranger, G.L., 641
Tazawa, H., 289
Tiihonen, K., 779
Torres, A.H., 771
Tort, L., 613
Towle, D.W., 243
Tsai, P.-S., 693
Tufts, B.L., 259

Unuma, T., 371

Van Anholt, R.D., 525
Van Ham, E.H., 525
Velleman, S.G., 401
Villarin, J.J., 621
Vuksan, V., 141

Wagner, C., 591
Walsh, P.J., 701
Wang, R., 663
Wang, Y., 127
Webb, R.E., 577
Weeks, J.M., 735
Weihrauch, D., 243
Wendelaar Bonga, S.E., 525
White, D.A., 683
Wick, M.P., 401
Wilson, P., 701
Wood, C.M., 701
Woods, G.M., 957
Wrangham, R., 35
Wright, W.G., 791
Wronski, E.V., 957

Yamano, K., 371
Yazawa, S., 391
Yokota, M., 391
Yosefi, S., 673